RESEARCH CIRCULAR 204 APRIL 1975

Farm Grain Storage and Drying Facilities in Ohio and Their Use, 1971-1972

JOHN W. SHARP

SUPRANEE RUNGDANAY

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
WOOSTER, OHIO

CONTENTS

* *

Farm Grain Storage and Drying Facilities in Ohio and Their Use, 1971-1972

JOHN W. SHARP and SUPRANEE RUNGDANAY[1]

INTRODUCTION

The amount of grain storage available on farms in Ohio has been the topic of considerable speculation for many years. Estimates have been made of farm storage capacity based on grain stock reports and by using the residual method of total production less the better known volume of commercial grain storage. However, these methods have not produced enough reliable information to aid farmers in an orderly marketing program. Neither have they adequately assisted farmers in making marketing decisions which would maximize their returns from their storage programs since the capacity and location of farm grain storage have been unknown.

PROCEDURE

To determine the amount of farm storage in Ohio and some of the marketing habits of grain farmers, a research effort was undertaken by the Ohio Agricultural Research and Development Center in cooperation with the North Central Regional Grain Marketing Research Committee (NC-104). A survey of the grain farmers in Ohio was made by a mail questionnaire sent to a 10% random sample of the grain farmers on the mailing list of each county Agricultural Stabilization and Conservation Service office. The 88 county agricultural Extension agents in Ohio sent 16,760 questionnaires by mail. Of the total of 2,727 questionnaires returned to the county Extension agents, 2,219 were in usable form.

The data from the questionnaires were tabulated and analyzed on a crop reporting district basis. Only a few counties had a sufficient number of usable questionnaires to make an accurate analysis on a county basis. The summary information from the sample of farms in each crop reporting district was expanded to represent the totals for the entire crop reporting district based on the proportion of the grain produced on the sample farms. Emphasis was placed on obtaining data on grain production, place of storage (on or off farm), type of storage, type and number of farm grain dryers, and where grain was sold (at harvest, out of farm storage, or out of commercial storage).

[1]Professor and Research Assistant, respectively, Department of Agricultural Economics and Rural Sociology, Ohio Agricultural Research and Development Center and The Ohio State University.

RESULTS

Data resulting from this analysis show a total of 236,822,998 bushels of grain were stored on Ohio farms in 1971. Of this total, 71,268,628 bushels were in ear corn storage and 165,544,370 bushels were in small grain storage. The survey also showed that 8,149 farmers had grain drying equipment. A detailed breakdown of farm storage and number of farms having grain drying equipment is shown in Table 1. The heavy grain producing crop reporting districts of 1, 2, 4, 5, and 7 account for 82.5% of the total storage and 88.9% of the farm dryers in Ohio.

With the production of 284 million bushels of corn, 81 million bushels of soybeans, 46 million bushels of wheat, and 22 million bushels of oats in 1972, which totaled 433 million bushels, Ohio farmers were equipped to store approximately 55% of their annual production. An estimated 25% of the corn was harvested in the ear form (approximately 71 million bushels).[2] This left 362 million bushels of shelled corn and small grains to be stored in the 166 million bushel capacity farm storage plus approximately 170 million bushel capacity commercial storage. This would indicate a shortage of 26 million bushels of storage space for small grains which must be handled in the marketing system, with the major part in transportation facilities.

Information was also obtained on the disposition of harvested grains by the sample of grain farmers. The percentages of corn, soybeans, and total grain sold at harvest, stored on the farm, or stored off the farm are

[2]Ohio Crop Reporting Service, U. S. Dept. of Agriculture, Columbus, Ohio.

TABLE 1.—Amount of Farm Grain Storage and Number of Farms Having Grain Drying Equipment by Crop Reporting District, Ohio, 1971 Crop.

Crop Reporting District	Number of Farms Having Grain Drying Equipment	Storage Capacity (Bu.)		
		Ear Corn Crib	Small Grain	Total
1	1331	13,267,213	36,372,426	49,639,639
2	1119	6,288,772	24,077,163	30,365,935
3	550	7,020,139	12,601,706	19,621,845
4	1891	14,500,255	30,599,793	45,100,048
5	1733	10,222,709	32,427,861	42,650,570
6	126	2,735,865	2,979,689	5,715,554
7	1161	7,062,716	20,561,977	27,624,693
8	181	7,085,494	3,276,145	10,361,369
9	58	3,085,465	2,657,610	5,743,075
State	8149	71,268,628	165,554,370	236,822,998

shown in Table 2. A total of 57.95% of the corn was stored on farms while only 28.61% of soybeans was stored on farms. More than half of all grain was stored on the farm, 27.79% was sold at harvest, and 21.72% was stored off the farm. (Delayed price grain was considered as sold at harvest.)

The percentages of grain delivered to elevators, other farmers, or truckers by distance from the farm are shown in Table 3. Approximately 77% of the corn and soybeans sold at harvest was delivered to the purchaser within 10 miles of the farm, while more than 10% of the corn and almost 14% of the soybeans were delivered to purchasers located more than 21 miles from the farm. Of the grain which was sold out of farm storage, almost 45% of the corn and more than 47% of the soybeans were sold to purchasers within 10 miles of the farm, while more than 39% of the corn and 36% of the soybeans were sold to purchasers located more than 21 miles from the farm. More than 80% of soybeans and corn stored off the farm was stored at elevators within 10 miles of the farm.

The farmers were asked to identify where the grain was sold and the amount and kind of grain sold to each type of marketing outlet. The percentages of corn sold to various types of outlets by crop reporting district are shown in Tables 4 and 5. The percentage sold at harvest is shown in Table 4, while the percentage sold out of farm storage is shown in Table 5.

TABLE 2.—Grains Sold at Harvest or Stored, Ohio, 1971 Crop Year.

Grain	Sold at Harvest	Stored on Farm	Stored off Farm
		Percent	
Corn	20.06	57.95	21.99
Soybeans	48.91	28.61	22.40
All Grain	27.79	50.49	21.72

TABLE 3.—Corn Delivered to Elevators by Distance from Farm, Ohio, 1971 Crop Year.

Source	Miles from Farm					
	0-10		11-20		21 and over	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
			Percent			
Sold at Harvest	77.41	77.62	11.93	8.39	10.66	13 89
On Farm Storage	44.98	47.13	15.54	16.42	39.48	36.45
Off Farm Storage	81.83	84.39	12.81	9.14	5.36	6.47

Farmers selling corn at harvest sell more than 75% of their corn to country elevators and less than 20% to terminal markets. In crop reporting districts 1, 2, and 5, all of which are near the terminal market centers of Toledo and Columbus, the percentages sold to country elevators are lower. In the Toledo area (District 1), nearly 30% of the grain sold at harvest is sold to the terminal market.

When farmers store the grain on the farm, market outlets change significantly. Less than half (47.44%) is sold to country elevators from farm storage. In District 1, nearly as much is sold by terminal markets as to country elevators. In District 7, which is near Cincinnati,

TABLE 4.—Corn Sold at Harvest by Type of Outlet by Crop Reporting District, 1971-1972.

Crop Reporting District	Country Elevator	Other Farmers	Truckers	Terminal Markets	Grain Processor	Other	Total
	Percent						
1	68.65	0.38	0.95	29.64		0.38	100
2	94.92	3.54	1.06	0.21		0.27	100
3	53.32	17.90	10 66		2.13	15.99	100
4	84.40	2.30		8.22	3.45	1.63	100
5	68.91	1.54		29.07	0.48		100
6	93.39	4.30	2.31				100
7	71.58	4.68	0.15	19.85	3.55	0.19	100
8	91.07	4.93			4.00		100
9	12.41	58.04			9.85	19.70	100
State	75.71	2.80	0.96	18.46	1.19	0.88	100

TABLE 5.—Corn Sold Out of Farm Storage by Type of Outlet by Crop Reporting District, 1971-1972.

Crop Reporting District	Country Elevator	Other Farmers	Truckers	Terminal Markets	Grain Processor	Other	Total
	Percent						
1	48.91	0.85	1.07	46.34	0.56	2.27	100
2	30.19	9.81	32.11	18.64	6.44	2.81	100
3	52.92	29.13	5.32		7.61	5.02	100
4	70.48	1.40	1.69	15.73	10.70		100
5	47.85	1.51	1.25	38.07	10.15	1.17	100
6	41.90	42.88	1.15		13.84	0.23	100
7	37.88	9.90	7.19	41.90	3.13		100
8	39.31	31.62	6.42		22.65		100
9	80.16	19.84					100
State	47.44	7.49	7.52	29.70	6.18	1.67	100

the percentage going to terminal markets is higher than that going to country elevators. Inter-farm sales, which are not a factor at harvest in the heavy corn producing areas, account for almost 7.5% of the sales from out of farm storage.

The farmers were asked the same question with regard to identifying the amount sold and the type of marketing outlet for soybeans. The percentages of soybeans sold to various types of outlets by crop reporting districts are shown in Tables 6 and 7. The percentage sold at harvest is shown in Table 6, while the percentage sold out of farm storage is in Table 7.

TABLE 6.—Soybeans Sold at Harvest by Type of Outlet by Crop Reporting District, 1971-1972.

Crop Reporting District	Country Elevator	Other Farmers	Truckers	Terminal Markets	Grain Processor	Other	Total
				Percent			
1	75.05		2.05	16.84	6.03	0.04	100
2	87.45	0.13	0.67	5.81	2.88	3.66	100
3	99.05			0.95			100
4	93.92	0.22	0.36	4.49	0.85	0.16	100
5	67.90		0.20	27.88	1.34	2.68	100
6	100.00						100
7	81.29		0.58	14.60	2.32	1.21	100
8	97.35				2.65		100
9	63.77					36.23	100
State	79.73	0.06	0.82	15.14	2.85	1.40	100

TABLE 7.—Soybeans Sold Out of Farm Storage by Type of Outlet by Crop Reporting District, 1971-1972.

Crop Reporting District	Country Elevator	Other Farmers	Truckers	Terminal Markets	Grain Processor	Other	Total
				Percent			
1	59.44	0.15	0.60	20.38	14.98	4.45	100
2	40.71	0.43	2.22	34.97	11.27	10.40	100
3	34.31	0.73		64.65	0.31		100
4	73.83	0.12		10.90	12.10	3.05	100
5	35.83	0.07	2.62	45.53	12.26	3.69	100
6				100.00			100
7	23.97		3.93	58.74		13.36	100
8	86.28			13.72			100
9	100.0						100
State	53.74	0.19	1.22	27.47	11.90	5.48	100

Almost 80% of the soybeans sold at harvest were sold to country elevators, with terminal markets accounting for more than 15%. With the exception of District 5, which showed almost 28%, the areas near the terminal markets were near the state average. Very few soybeans are sold direct to processors at harvest.

When soybeans are stored on the farm, a different market pattern prevails, but not as much change occurs as with corn. Soybean sales from farm storage to country elevators accounted for almost 54% of total sales, while terminal markets and processors together accounted for almost 40%. In Districts 2 and 7, a more pronounced change existed in the percentage sold direct to terminal markets and processors from the pattern set by farmers selling at harvest.

SUMMARY

As corn and soybeans are stored on the farm, farmers will market a larger percentage at the terminal centers than when they sell at harvest. Likewise, the average distance the grain is shipped from farm to first handler increases (Table 3). Furthermore, farmers have the capacity to store more than half of their annual crop production in on-farm storage and use this storage capacity for about half of the total annual output.

BETTER LIVING IS THE PRODUCT

of research at the Ohio Agricultural Research and Development Center. All Ohioans benefit from this product.

Ohio's 110,000 farm families benefit from the results of agricultural research translated into increased earnings and improved living conditions. So do the families of the thousands of workers employed in the firms making up the state's $8 billion agribusiness complex.

But the greatest benefits of agricultural research flow to the millions of Ohio consumers. They enjoy the end products of agricultural science —the world's most wholesome and nutritious food, attractive lawns, beautiful ornamental plants, and hundreds of consumer products containing ingredients originating on the farm, in the greenhouse and nursery, or in the forest.

The Ohio Agricultural Experiment Station, as the Center was called for 83 years, was established at The Ohio State University, Columbus, in 1882. Ten years later, the Station was moved to its present location in Wayne County. In 1965, the Ohio General Assembly passed legislation changing the name to Ohio Agricultural Research and Development Center—a name which more accurately reflects the nature and scope of the Center's research program today.

Research at OARDC deals with the improvement of all agricultural production and marketing practices. It is concerned with the development of an agricultural product from germination of a seed or development of an embryo through to the consumer's dinner table. It is directed at improved human nutrition, family and child development, home management, and all other aspects of family life. It is geared to enhancing and preserving the quality of our environment.

Individuals and groups are welcome to visit the OARDC, to enjoy the attractive buildings, grounds, and arboretum, and to observe first hand research aimed at the goal of Better Living for All Ohioans!

The State Is the Campus for Agricultural Research and Development

Ohio's major soil types and climatic conditions are represented at the Research Center's 13 locations.

Research is conducted by 15 departments on more than 7200 acres at Center headquarters in Wooster, eight branches, Green Springs Crops Research Unit, Pomerene Forest Laboratory, North Appalachian Experimental Watershed, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County: 1047 acres (Cooperative with Agricultural Research Service, U. S. Dept. of Agriculture)

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres